

Stream & Location: NINE-MILE CREEK (SITE 10) RM: Date: 08/16/10

J. Rodgers / S. Horton Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: STORET #: Lat./Long.: 41.5423 / 81.5523 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Includes categories: BEST TYPES, OTHER TYPES, ORIGIN, and QUALITY. Score: 15

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts... Includes categories: UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS, ROOTWADS, BOULDERS, OXBOWS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS. Score: 7

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). Includes categories: SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY. Score: 10.5

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). Includes categories: EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY. Score: 8

5] POOL / GLIDE AND RIFFLE / RUN QUALITY Includes categories: MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY, Recreation Potential. Score: 7

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Includes categories: RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, RIFFLE / RUN EMBEDDEDNESS. Score: 4.5

6] GRADIENT (66.7 ft/mi) DRAINAGE AREA (0.7 mi^2) Includes categories: GRADIENT, %POOL, %GLIDE, %RUN, %RIFFLE. Score: 4

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT
 WADE
 L. LINE
 OTHER
- DISTANCE

STAGE

- 1st - sample pass-- 2nd
- HIGH
 UP
 NORMAL
 LOW
 DRY

CLARITY

- 1st --sample pass-- 2nd
- < 20 cm
 20-40 cm
 40-70 cm
 > 70 cm/CTB
 SECCHI DEPTH

CANOPY

- 1st _____ cm
 2nd _____ cm
- > 85%- OPEN
 55%-<85%
 30%-<55%
 10%-<30%
 <10%- CLOSED

CJ RECREATION

AREA DEPTH
 POOL: >100ft² >3ft

BJ AESTHETICS

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOS/SSOs/OUTFALLS

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMORED / SLUMPS
- ISLANDS / SCOURED
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

EJ ISSUES

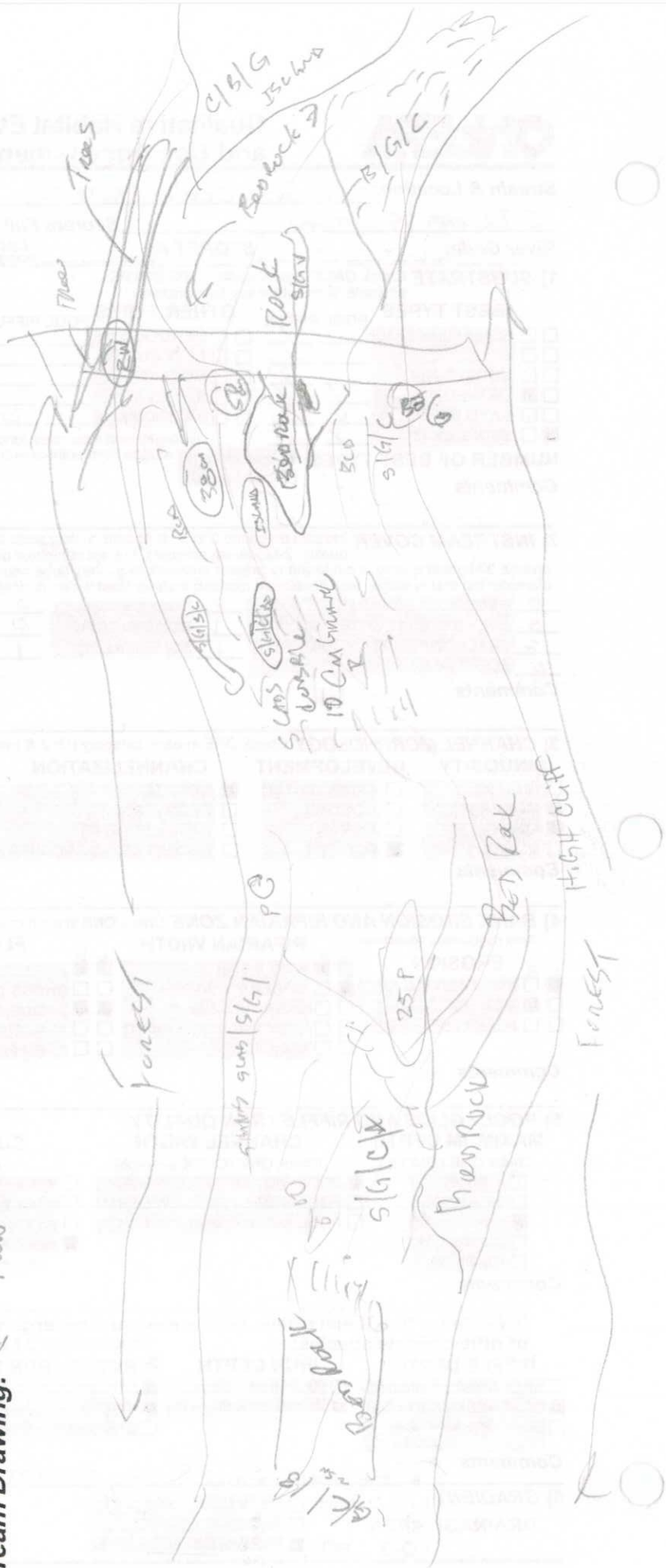
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- \bar{x} width
- \bar{x} depth
- max. depth
- \bar{x} bankfull width
- bankfull \bar{x} depth
- W/D ratio
- bankfull max. depth
- floodprone \bar{x}^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing: ← Flow



Stream & Location: Nine-Mile Creek-Mela Park Branch (SRR 9) RM: 0.1 Date: 08/16/10

Seth Hothem, John Rhoades Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District
River Code: STORET #: Lat./ Long.: 41.5429 181.5552 Office verified location

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. BEST TYPES: BLDR/SLABS [10], BOULDER [9], COBBLE [8], GRAVEL [7], SAND [6], BEDROCK [5]. OTHER TYPES: HARDPAN [4], DETRITUS [3], MUCK [2], SILT [2], ARTIFICIAL [0]. ORIGIN: LIMESTONE [1], TILLS [1], WETLANDS [0], HARDPAN [0], SANDSTONE [0], RIP/RAP [0], LACUSTURINE [0], SHALE [-1], COAL FINES [-2]. QUALITY: HEAVY [-2], MODERATE [-1], NORMAL [0], FREE [1], EXTENSIVE [-2], MODERATE [-1], NORMAL [0], NONE [1]. Substrate Maximum 20

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts. UNDERCUT BANKS [1], OVERHANGING VEGETATION [1], SHALLOWS (IN SLOW WATER) [1], ROOTMATS [1]. POOLS > 70cm [2], ROOTWADS [1], BOULDERS [1]. OXBOWS, BACKWATERS [1], AQUATIC MACROPHYTES [1], LOGS OR WOODY DEBRIS [1]. AMOUNT: EXTENSIVE >75% [11], MODERATE 25-75% [7], SPARSE 5-<25% [3], NEARLY ABSENT <5% [1]. Cover Maximum 20

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY: HIGH [4], MODERATE [3], LOW [2], NONE [1]. DEVELOPMENT: EXCELLENT [7], GOOD [5], FAIR [3], POOR [1]. CHANNELIZATION: NONE [6], RECOVERED [4], RECOVERING [3], RECENT OR NO RECOVERY [1]. STABILITY: HIGH [3], MODERATE [2], LOW [1]. Channel Maximum 20

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). RIVER RIGHT LOOKING DOWNSTREAM. EROSION: NONE/LITTLE [3], MODERATE [2], HEAVY/SEVERE [1]. RIPARIAN WIDTH: WIDE > 50m [4], MODERATE 10-50m [3], NARROW 5-10m [2], VERY NARROW < 5m [1], NONE [0]. FLOOD PLAIN QUALITY: FOREST, SWAMP [3], SHRUB OR OLD FIELD [2], RESIDENTIAL, PARK, NEW FIELD [1], FENCED PASTURE [1], OPEN PASTURE, ROWCROP [0]. CONSERVATION TILLAGE [1], URBAN OR INDUSTRIAL [0], MINING / CONSTRUCTION [0]. Riparian Maximum 10

5) POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH: > 1m [6], 0.7-<1m [4], 0.4-<0.7m [2], 0.2-<0.4m [1], < 0.2m [0]. CHANNEL WIDTH: POOL WIDTH > RIFFLE WIDTH [2], POOL WIDTH = RIFFLE WIDTH [1], POOL WIDTH < RIFFLE WIDTH [0]. CURRENT VELOCITY: TORRENTIAL [-1], VERY FAST [1], FAST [1], MODERATE [1], SLOW [1], INTERSTITIAL [-1], INTERMITTENT [-2], EDDIES [1]. Recreation Potential: Primary Contact, Secondary Contact. Pool / Current Maximum 12

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]. RIFFLE DEPTH: BEST AREAS > 10cm [2], BEST AREAS 5-10cm [1], BEST AREAS < 5cm [metric=0]. RUN DEPTH: MAXIMUM > 50cm [2], MAXIMUM < 50cm [1]. RIFFLE / RUN SUBSTRATE: STABLE (e.g., Cobble, Boulder) [2], MOD. STABLE (e.g., Large Gravel) [1], UNSTABLE (e.g., Fine Gravel, Sand) [0]. RIFFLE / RUN EMBEDDEDNESS: NONE [2], LOW [1], MODERATE [0], EXTENSIVE [-1]. Riffle / Run Maximum 8

6) GRADIENT (47.1 ft/mi) DRAINAGE AREA (3.1 mi^2) VERY LOW - LOW [2-4], MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL: %GLIDE: %RUN: %RIFFLE: Gradient Maximum 10

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT
- WADE
- L. LINE
- OTHER

STAGE

- HIGH
- UP
- NORMAL
- LOW
- DRY

DISTANCE

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

CLARITY

- 1st sample pass-- 2nd
- < 20 cm
- 20-<40 cm
- 40-70 cm
- > 70 cm/CTB
- SECCHI DEPTH

meters

CANOPY

- > 85%- OPEN
- 55%-<85%
- 30%-<55%
- 10%-<30%
- <10%- CLOSED

CJ RECREATION

AREA DEPTH
POOL: >100ft² >3ft

BJ AESTHETICS

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

EJ ISSUES

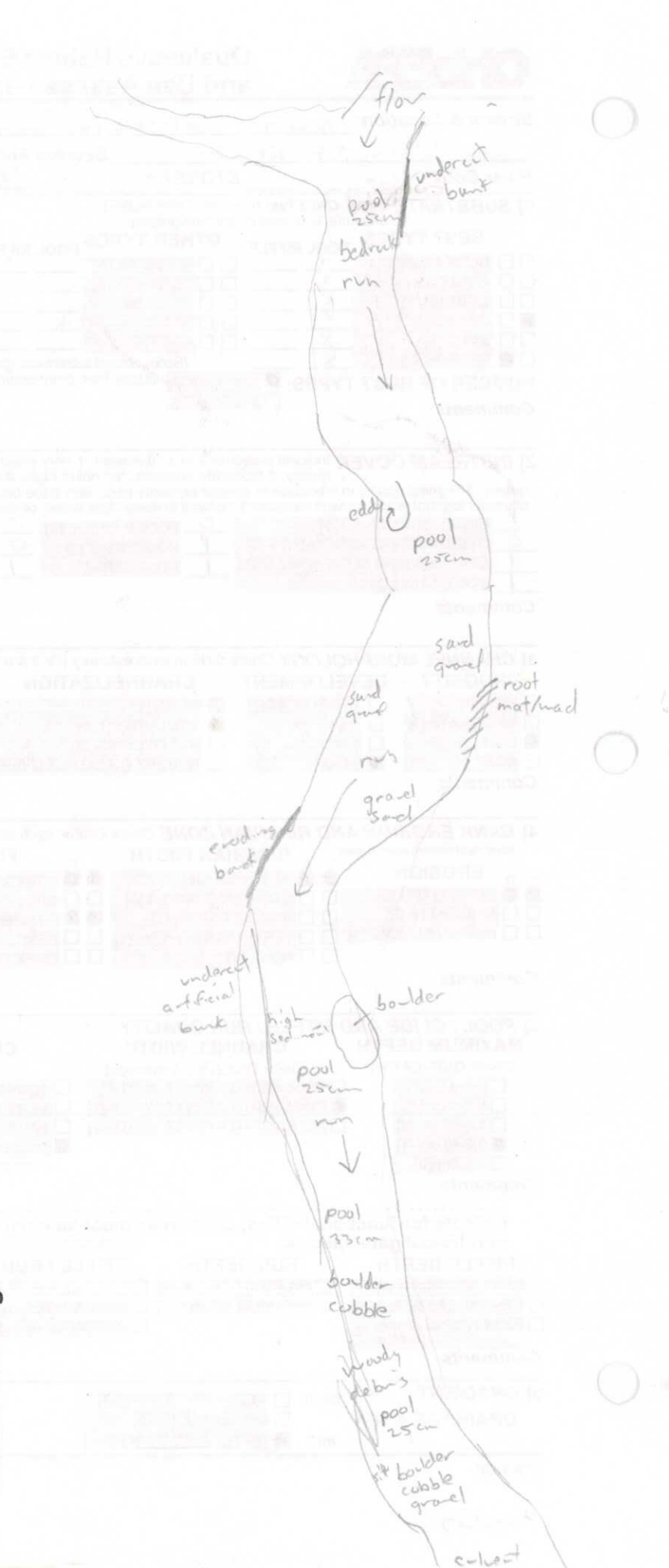
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
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- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- \bar{x} width
- \bar{x} depth
- max. depth
- \bar{x} bankfull width
- bankfull \bar{x} depth
- W/D ratio
- bankfull max. depth
- floodprone \bar{x}^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Comment RE: Reach consistency/Is reach typical of stream?, Recreation/Observed - Inferred, Other/Sampling observations, Concerns, Access directions, etc.



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 74.5

Stream & Location: Nine Mile Creek US of Lakeshore Blvd **RM:** 0.40 **Date:** 08/12/10

Seth Hothem Francisco Rivera **Scorers Full Name & Affiliation:** Northeast Ohio Regional Sewer District
River Code: - - - - **STORET #:** - - - - **Lat./ Long.:** 41.5525 181.5991 (NAD 83 - decimal) **Office verified location**

1] SUBSTRATE Check **ONLY** Two substrate **TYPE BOXES**; estimate % or note every type present

| | | | | | | | |
|--|--------------------------------------|---|--------------------------------------|---|-------------------------------|---|--|
| BEST TYPES | | OTHER TYPES | | ORIGIN | | QUALITY | |
| <input type="checkbox"/> BLDR /SLABS [10] | <input type="checkbox"/> POOL RIFFLE | <input type="checkbox"/> HARDPAN [4] | <input type="checkbox"/> POOL RIFFLE | <input type="checkbox"/> LIMESTONE [1] | <input type="checkbox"/> SILT | <input type="checkbox"/> HEAVY [-2] | 14.5 Maximum 20 |
| <input type="checkbox"/> BOULDER [9] | <input checked="" type="checkbox"/> | <input type="checkbox"/> DETRITUS [3] | <input type="checkbox"/> | <input checked="" type="checkbox"/> TILLS [1] | <input type="checkbox"/> | <input checked="" type="checkbox"/> MODERATE [-1] | |
| <input type="checkbox"/> COBBLE [8] | <input checked="" type="checkbox"/> | <input type="checkbox"/> MUCK [2] | <input type="checkbox"/> | <input type="checkbox"/> WETLANDS [0] | <input type="checkbox"/> | <input type="checkbox"/> NORMAL [0] | |
| <input checked="" type="checkbox"/> GRAVEL [7] | <input checked="" type="checkbox"/> | <input type="checkbox"/> SILT [2] | <input checked="" type="checkbox"/> | <input type="checkbox"/> HARDPAN [0] | <input type="checkbox"/> | <input type="checkbox"/> FREE [1] | |
| <input checked="" type="checkbox"/> SAND [6] | <input checked="" type="checkbox"/> | <input type="checkbox"/> ARTIFICIAL [0] | <input checked="" type="checkbox"/> | <input type="checkbox"/> SANDSTONE [0] | <input type="checkbox"/> | <input type="checkbox"/> EXTENSIVE [-2] | |
| <input type="checkbox"/> BEDROCK [5] | <input type="checkbox"/> | | | <input type="checkbox"/> RIP/RAP [0] | <input type="checkbox"/> | <input type="checkbox"/> MODERATE [-1] | |

NUMBER OF BEST TYPES: 4 or more [2] 3 or less [0] (Score natural substrates; ignore sludge from point-sources)

Comments

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

| | | | |
|---|---|---|-----------------------------|
| <input type="checkbox"/> UNDERCUT BANKS [1] | <input type="checkbox"/> POOLS > 70cm [2] | <input type="checkbox"/> OXBOWS, BACKWATERS [1] | Amount Maximum 20 |
| <input type="checkbox"/> OVERHANGING VEGETATION [1] | <input type="checkbox"/> ROOTWADS [1] | <input type="checkbox"/> AQUATIC MACROPHYTES [1] | |
| <input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1] | <input type="checkbox"/> BOULDERS [1] | <input type="checkbox"/> LOGS OR WOODY DEBRIS [1] | |
| <input type="checkbox"/> ROOTMATS [1] | | | |

Comments

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

| | | | |
|---|--|--|--|
| SINUOSITY | DEVELOPMENT | CHANNELIZATION | STABILITY |
| <input type="checkbox"/> HIGH [4] | <input type="checkbox"/> EXCELLENT [7] | <input checked="" type="checkbox"/> NONE [6] | <input type="checkbox"/> HIGH [3] |
| <input type="checkbox"/> MODERATE [3] | <input checked="" type="checkbox"/> GOOD [5] | <input type="checkbox"/> RECOVERED [4] | <input checked="" type="checkbox"/> MODERATE [2] |
| <input checked="" type="checkbox"/> LOW [2] | <input type="checkbox"/> FAIR [3] | <input type="checkbox"/> RECOVERING [3] | <input type="checkbox"/> LOW [1] |
| <input type="checkbox"/> NONE [1] | <input type="checkbox"/> POOR [1] | <input type="checkbox"/> RECENT OR NO RECOVERY [1] | |

Comments

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for **EACH BANK** (Or 2 per bank & average)

| | | | |
|---|--|---|-------------------------------|
| EROSION | RIPARIAN WIDTH | FLOOD PLAIN QUALITY | Riparian Maximum 10 |
| <input checked="" type="checkbox"/> NONE / LITTLE [3] | <input type="checkbox"/> WIDE > 50m [4] | <input type="checkbox"/> FOREST, SWAMP [3] | |
| <input checked="" type="checkbox"/> MODERATE [2] | <input type="checkbox"/> MODERATE 10-50m [3] | <input type="checkbox"/> SHRUB OR OLD FIELD [2] | |
| <input type="checkbox"/> HEAVY / SEVERE [1] | <input type="checkbox"/> NARROW 5-10m [2] | <input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1] | |

Comments

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

| | | | |
|--|---|---|--|
| MAXIMUM DEPTH Check ONE (ONLY!) | CHANNEL WIDTH Check ONE (Or 2 & average) | CURRENT VELOCITY Check ALL that apply | Recreation Potential Primary Contact Secondary Contact <small>(circle one and comment on back)</small> |
| <input checked="" type="checkbox"/> > 1m [6] | <input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2] | <input type="checkbox"/> TORRENTIAL [-1] | |
| <input type="checkbox"/> 0.7-<1m [4] | <input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1] | <input type="checkbox"/> VERY FAST [1] | |
| <input type="checkbox"/> 0.4-<0.7m [2] | <input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0] | <input type="checkbox"/> SLOW [1] | |

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]

| | | | |
|---|--|--|--|
| RIFFLE DEPTH | RUN DEPTH | RIFFLE / RUN SUBSTRATE | RIFFLE / RUN EMBEDDEDNESS |
| <input type="checkbox"/> BEST AREAS > 10cm [2] | <input checked="" type="checkbox"/> MAXIMUM > 50cm [2] | <input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2] | <input type="checkbox"/> NONE [2] |
| <input checked="" type="checkbox"/> BEST AREAS 5-10cm [1] | <input type="checkbox"/> MAXIMUM < 50cm [1] | <input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1] | <input type="checkbox"/> LOW [1] |
| <input type="checkbox"/> BEST AREAS < 5cm [metric=0] | | <input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0] | <input checked="" type="checkbox"/> MODERATE [0] |

Comments

6] GRADIENT (10.46 ft/mi) VERY LOW - LOW [2-4] MODERATE [6-10] HIGH - VERY HIGH [10-6]

DRAINAGE AREA (11.8 mi²)

%POOL: **%GLIDE:**
%RUN: **%RIFFLE:**

Gradient 10
Maximum 10

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/Observed - Inferred, Other/Sampling observations, Concerns, Access directions, etc.

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT
- WADE
- L. LINE
- OTHER

STAGE

- HIGH
- UP
- NORMAL
- LOW
- DRY

1st -sample pass- 2nd

DISTANCE

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meters

CANOPY

- > 85% - OPEN
- 55% - < 85%
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CJ RECREATION

POOL: > 100ft² > 3ft

BJ AESTHETICS

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPED
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FJ MEASUREMENTS

- \bar{x} width
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- max. depth
- \bar{x} bankfull width
- bankfull \bar{x} depth
- W/D ratio
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- floodprone \bar{x}^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:

